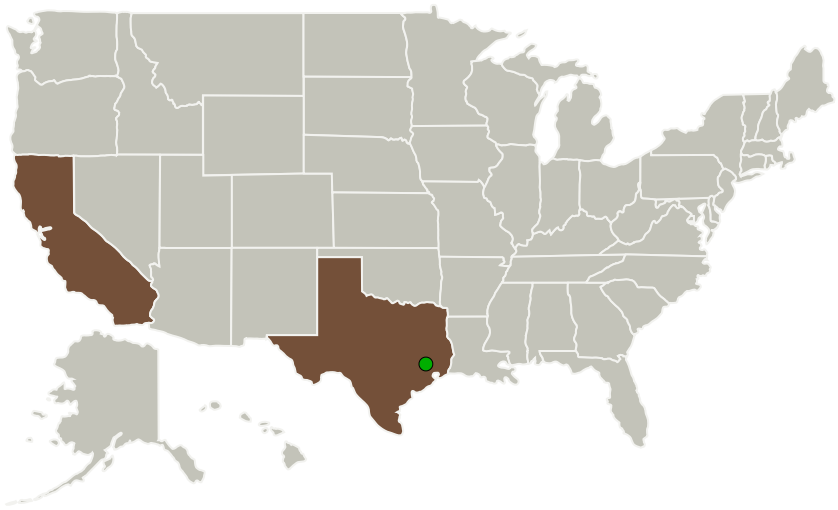
In-Flight Non-Invasive Sensing of Blood Analytes, Phase I

Completed Technology Project (2011 - 2011)

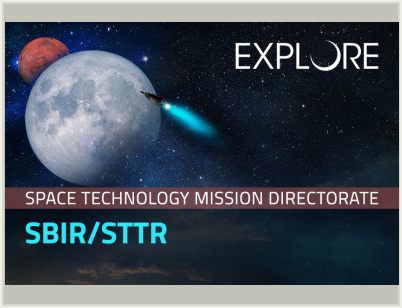
Project Introduction

NASA has a serious unmet need for miniature biologic sensors capable of on orbit sample analysis and in situ, real time analysis of astronaut health. We propose an alternative way to monitor the health or illness of the crew members that would provide continuous monitoring of blood analytes. This information can be transmitted back to ground control in real time. The method could bypass the need to preserve biological specimens. This novel multivariate system would measure the optical rotation of laser polarized light reflected from human skin as well as scattering and absorption characteristics directly related to the concentration of certain blood analytes that reliably indicate the state of health of the individual.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Advanced Diagnostic Technologies	Lead Organization	Industry	Santa Barbara, California
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas



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Primary U.S. Work Locations	
California	Texas

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138635)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Advanced Diagnostic Technologies

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

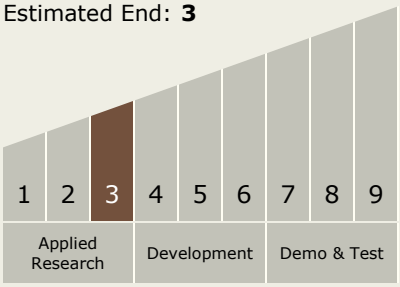
Carlos Torrez

Principal Investigator:

Cristopher Geiler

Technology Maturity (TRL)

Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.1 Medical Diagnosis and Prognosis

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System